Concept, Code, Term and Word: Preserving the Distinctions*

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By conservative estimate more than fifty presentations at the recent MEDINFO95[1] dealt explicitly and centrally with clinical terminologies. Anticipating this explosion of interest in the subject, the "Codes and Terminologies" Subcommittee[2] of ANSI HISPP (Health Informatics Standards Planning Panel) has charged itself with formulating a glossary to help its members, HISPP, and the field at large communicate with one another about these important topics.

We argue that the core of this glossary, and, of course, any standard based on it, should preserve the distinctions between the notions "concept," "code," "term," "nominal phrase," and "word." By implication we argue that since casual usage frequently blurs or confuses these distinctions, technical use of these words should adhere to some agreed upon convention wherever possible.

Our proposed core has to do with units of meaning and representation. A concept is a unit of thought, a code is a unit of a partition, a term is a unit of formal, technical language, a nominal phrase is a unit of narrative language, and a word is an unconstrained unit of language use to construct terms and nominal phrases.

Figure 1 represents foundational work in twentieth century semantics.[3] The claim is that the only connection between *symbol* and *referent* (the thing named by the symbol) is the appropriate *concept*. According to this view, since a concept is a unit of thought, only humans can make that connection reliably.

Figure 2 is a translation of the meaning triangle into the clinical domain. In this domain, we note that codes, terms (formal names) and nominal phrases (narrative names, say from a discharge summary) are associated with concepts. By implication, codes, terms and nominal phrases are *required* to name concepts. E.g., "words" or other symbols that do not seem to name concepts, cannot, in this context, act as codes, terms or nominal phrases.

Figure 3 shows how the notions identified relate to one another. In this context, words and codes are primitives. Words are used to form

Figure 1 - The Meaning Triangle.

Figure 2 -- The Clinical Triangle

Figure 3 - The Naming Hierarchy

terms and nominal phrases. Codes, terms and nominal phrases name concepts. However, while codes, terms, and nominal phrases can be lexically similar, or even identical, the manner in which they attempt to define and communicate the concept named is fundamentally different.
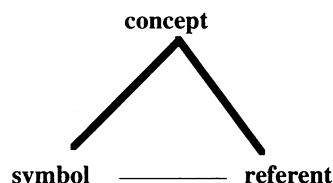
First, a code has no intrinsic meaning; rather it derives its meaning through two complementary mechanisms. One mechanism is the partition of which the code is an element, i.e., whatever the code is, it is explicitly not one of the other codes that make up the partition. The other mechanism is the term and any definition, or "scope note," associated with the code. When the code and definition are combined with the terms and definitions associated with the other codes, the meaning of the code is defined.
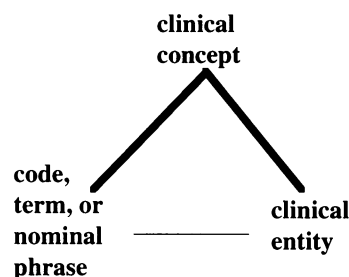
Second, when terms exist with codes, the same arguments can be applied; but when terms exist without codes then the terms themselves must be interpreted as autonomous names for concepts. For example, "keywords" used to index a paper qualify as terms; the key requirement is that terms are intended for reuse.

Third, in contrast, nominal phrases may not be reusable without the narrative context in which they occurred.
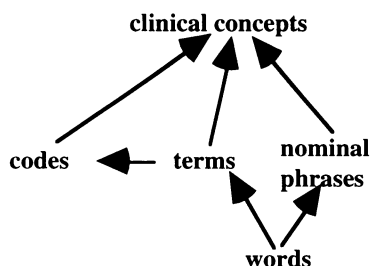
In summary, the five notions - concept, code, term, nominal phrase, and word- all have distinct technical meanings; neither humans nor computers can use them in the coding patient descriptions without agreement on what they mean.

References

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